

RECOMMENDATION FOR UNIFORM APPLICATION AND INTERPRETATION OF REGULATION 27 OF THE INTERNATIONAL
CONVENTION ON LOAD LINES, 1966
RESOLUTION A.172 (ES.IV) adopted on 28 November 1968

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AND INTERPRETATION OF REGULATION 27 OF
THE INTERNATIONAL CONVENTION ON LOAD LINES, 1966

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THE ASSEMBLY,

NOTING Article 16(i) of the IMCO Convention concerning
the function of the Assembly,

NOTING ALSO Regulation 27 of the International Convention
on Load Lines, 1966, concerning the subdivision and damage
stability of cargo ships,

DESIRING to ensure uniformity in the application and
interpretation of that Regulation,

HAVING CONSIDERED the Recommendation adopted by the
Maritime Safety Committee at its eighteenth session,

ADOPTS the Recommendation for Uniform Application and
Interpretation of Regulation 27 of the International Convention
on Load Lines, 1966, the text of which is set out in the Annex
to this Resolution,

INVITES all governments concerned to take steps to give
effect to the Recommendation as soon as possible.

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ANNEX

RECOMMENDATION FOR UNIFORM APPLICATION AND
INTERPRETATION OF REGULATION 27 OF THE
INTERNATIONAL CONVENTION ON LOAD LINES, 1966

In order to ensure uniform application and interpretation of Regulation 27 of the International Convention on Load Lines, 1966, Administrations should be guided by the following recommendations:

1. The ship in the intact condition is assumed to have no trim.
2. In applying paragraphs (3), (7) and (9) of Regulation 27 when calculating subdivision, account should be taken of the following assumptions:
 - (a) The vertical extent of damage in all cases is assumed to be equal to the depth of the ship at the flooded compartment under consideration. The buoyancy of any superstructure or deckhouse directly above the flooded compartment is to be disregarded.
 - (b) The transverse extent of damage is equal to $B/5$, measured inboard from the side of the ship perpendicularly to the centre line at the level of the summer load waterline. If damage of a lesser extent results in a more severe condition such lesser extent should be assumed.
 - (c) No main transverse bulkhead is assumed damaged except where in Regulation 27(9) the flooding of any two adjacent fore and aft compartments

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is envisaged; in addition the damage may be located between two transverse bulkheads bounding side tanks.

If in a transverse bulkhead there are steps or recesses of not more than 3.05 m. in length located within the extent of transverse penetration of damage as defined in paragraph 2(b) above, such transverse bulkheads may be considered intact and the adjacent compartments may be floodable singly. If, however, within the extent of penetration of damage there is a step or recess of more than 3.05 m. in length in a transverse bulkhead, the two compartments adjacent to this bulkhead should be considered as flooded.

- (d) If a double bottom or side tank is divided by a transverse bulkhead located more than 3.05 m. from a main transverse bulkhead, the adjacent double bottom or side tank should be considered as flooded. If this side tank has openings into the holds, such holds should also be considered as flooded. This provision is applicable even where such openings are fitted with closing appliances.

- 3. In applying paragraph (9) of Regulation 27, the calculations for the flooded condition should be based on the assumptions specified in paragraph 2 above. To be considered effective main transverse watertight bulkheads should be spaced at least $3.05 \text{ m.} + .03L$, or 10.65 m. whichever is the lesser.

Where transverse bulkheads are spaced a lesser distance, one or more of these bulkheads should be assumed as non-existent in order to achieve the minimum spacing between bulkheads.

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4. In applying paragraphs (3), (7) and (9) of Regulation 27, the specified conditions after flooding, as determined by paragraphs 2 and 3 above, should be defined as follows:

- (a) The final waterline after flooding taking into account sinkage, heel and trim is to be below the lower edge of any opening through which progressive flooding may take place. Such openings should include air pipes and those which are closed by means of weathertight doors (even if they comply with Regulation 12) or covers (even if they comply with Regulation 16 or Regulation 19(4)), and may exclude those openings closed by means of manhole covers and flush scuttles (which comply with Regulation 18), cargo hatch covers of the type described in Regulation 27(2), watertight doors which are secured closed while at sea and so logged, remotely operated sliding watertight doors, and side scuttles of the non-opening type (which comply with Regulation 23).
- (b) If pipes, ducts or tunnels are situated within the assumed extent of penetration of damage as defined in paragraph 2(b) above, arrangements should be made so that flooding cannot thereby extend beyond the limits assumed for the calculations of the damaged conditions.
- (c) In applying sub-paragraph (3)(b) of Regulation 27, the angle of heel due to unsymmetrical flooding should not exceed 15° . Since sub-paragraph (3)(b) states that the maximum angle of heel is to be of the order of 15° , if no part of the deck is immersed, an angle of heel of up to 17° may be accepted.

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- (d) When any part of the deck beyond the limits of flooding is immersed or in any case where the margin of stability in the flooded condition may be considered doubtful, the dynamic stability should be investigated.

The dynamic stability may be regarded as sufficient if the righting lever curve has a minimum range of 20° beyond the position of equilibrium in association with a righting lever of at least 0.1 metre.

- (e) After flooding, the metacentric height as calculated by the constant displacement method should be at least 50 mm. in the upright condition.

5. The height of the centre of gravity above base line is assessed allowing for homogeneous loading of all spaces designed to contain cargo and 50 per cent of the individual total capacity of all tanks and spaces fitted to contain consumable fluids and ship's stores.

In calculating the height of the centre of gravity account should be taken of corrections for free surfaces of liquids. In calculating these corrections it should be assumed that, for each type of liquid, at least one transverse pair or a single centre line tank has a free surface and the tank or combination of tanks to be taken into account should be those where the effect of free surfaces is the greatest.

The remaining tanks should be assumed either completely empty or completely filled, and the distribution of consumable liquids between these tanks should be effected so as to obtain the greatest possible height above the keel for the centre of gravity.

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The effect of free surface in compartments containing fluid cargoes which may exist in the normal full load condition should be taken into account.

Weights should be calculated on the basis of the following values for specific weights:

Salt water	1.025	metric	ton	per	cu.	m.
Fresh water	1.000	"	"	"	"	"
Oil fuel	0.950	"	"	"	"	"
Diesel oil	0.900	"	"	"	"	"
Lubricating oil	0.900	"	"	"	"	"

6. With regard to tanks situated in the machinery compartments and designed to contain consumable liquids, such as fuel oil and diesel oil, lubricating oil and fresh water, unless the dynamic stability is required to be investigated in accordance with paragraph 4(d) above, or where the heeling moment due to unsymmetrical flooding of these tanks is appreciable, such tanks will be assumed not to be floodable.
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